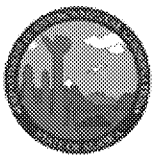
Evaluation of Key Elements and Options for Development of Human Health Criteria

Technical Workgroup Report

12/09/2015

DRAFT

Prepared by the Alaska Department of Environmental Conservation



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Acronyms and Abbreviations

Commented [TB1]: To be updated at a later date

AAC	Alaska Administrative Code
ADF&G	Alaska Department of Fish and Game
APDES	Alaska Pollutant Discharge Elimination System
AS	Alaska Statute
BMP	Best Management Practice
BWQ	Baseline Water Quality
CFR	Code of Federal Regulations
CWA	Clean Water Act
DEC	Department of Environmental Conservation
DNR	Department of Natural Resources
EPA	U.S. Environmental Protection Agency
F.R.	Federal Register
NPDES	National Pollutant Discharge Elimination System
QAPP	Quality Assurance Project Plan
TMDL	Total Maximum Daily Load
U.S.C.	United States Code

Definitions

Commented [TB2]: To be updated at a later date

The majority of the terms below are defined in regulation[1]. The definitions are copied directly from regulation with the regulation citation provided in parentheses. The remaining definitions reflect the Workgroup's use of the terms for the purposes of their discussions and this report.

1) "ambient water quality" means the natural concentration of water quality constituents prior to mixing of either point or nonpoint source load of contaminants;
2) "Clean Water Act" means the Federal Water Pollution Control Act (33 U.S.C. 1251 - 1387), as amended through February 4, 1987 [18 AAC 70.990(12)];
3) "criterion" means a set concentration or limit of a water quality parameter that, when not exceeded, will protect an organism, a population of organisms, a community of organisms, or a prescribed water use with a reasonable degree of safety; a criterion might be a narrative statement instead of a numerical concentration or limit [18 AAC 70.990(17)];
4) "department" means the Department of Environmental Conservation [18 AAC 70.990(18)];
5) "designated uses" means those uses specified in 18 AAC 70.020 as protected use classes for each waterbody or segment, regardless of whether those uses are being attained [18 AAC 70.990(19)];
6) "effluent" means the segment of a wastewater stream that follows the final step in a treatment process and precedes discharge of the wastewater stream to the receiving environment [18 AAC 70.990(22)];
7) "existing uses" means those uses actually attained in a waterbody on or after November 28, 1975 [18 AAC 70.990(24)];
8) "fish" means any of the group of cold-blooded vertebrates that live in water and have permanent gills for breathing and fins for locomotion [18 AAC 70.990(26)];
9) "fishable/swimmable" means water quality which provides for the protection and propagation of indigenous fish, shellfish, and wildlife and provides for recreation in and on the water [33 U.S.C. § 1251(a)];
10) "groundwater" means water in the zone of saturation; in this paragraph, "zone of saturation" is the zone below the water table, where all interstices are filled with water [18 AAC 70.990(28)];
11) "lake" means an inland waterbody of substantial size that occupies a basin or hollow in the earth's surface and that might or might not have a current or a single direction of flow [18 AAC 70.990(33)];

[1] The applicable regulations include Alaska Statute (AS), Alaska Administrative Code (AAC), Code of Federal Regulations (CFR), Federal Register (F.R.) and United States Code (U.S.C.).

12) "natural condition" means any physical, chemical, biological, or radiological condition existing in a waterbody before any human-caused influence on, discharge to, or addition of material to, the waterbody [18 AAC 70.990(41)];

13) "persist" means the ability of a substance or chemical not to decay, degrade, transform, volatilize, hydrolyze, or photolyze [18 AAC 70.990(44)];

14) "point source" means a discernible, confined, and discrete conveyance, including a pipe, ditch, channel, tunnel, conduit, well, container, rolling stock, or vessel or other floating craft, from which pollutants are or could be discharged [18 AAC 70.990(46)];

15) "pollution" means the contamination or altering of waters, land, or subsurface land of the state in a manner which creates a nuisance or makes waters, land, or subsurface land unclean, or noxious, or impure, or unfit so that they are actually or potentially harmful or detrimental or injurious to public health, safety, or welfare, to domestic, commercial, industrial, or recreational use, or to livestock, wild animals, bird, fish, or other aquatic life (AS 46.03.900);

16) "practicable" means available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes [18 AAC 70.990(48)];

17) "sediment" means solid material of organic or mineral origin that is transported by, suspended in, or deposited from water; sediment includes chemical and biochemical precipitates and organic material, such as humus [18 AAC 70.990(32)];

18) "shellfish" means a species of crustacean, mollusk, or other aquatic invertebrate with a shell or shell-like exoskeleton, in any stage of its life cycle [18 AAC 70.990(72)];

19) "spawning" means the process of producing, emitting, or depositing eggs, sperm, seed, germ, larvae, young, or juveniles, especially in large numbers, by aquatic life [18 AAC 70.990(56)];

20) "toxic" means of, relating to, or resulting from a substance or substance combination that causes in affected organisms or their offspring (A) death, disease, malignancy or genetic mutations; (B) abnormalities or malfunctions in growth, development, behavior, or reproduction; or (C) other physical or physiological abnormalities or malfunctions [18 AAC 70.990(61)];

21) "water," "waterbody," and "waters" mean "waters of the United States" per the Workgroup and not the definition in 18 AAC 70.990 or AS 46.03.900;

22) "waters of the United States" has the meaning given the term "waters of the United States" in 40 C.F.R. 122.2, as amended through August 15, 1997 [18 AAC 70.990(66)] and includes interstate waters and wetlands, waters subject to the ebb and flow of the tide, waters that may be used for interstate or foreign commerce or recreation, and tributaries, impoundments, the territorial sea, or wetlands adjacent to such waters regardless of whether such waters are intermittent (for complete citation see Appendix A);

23) "water recreation" means contact recreation or secondary recreation [18 AAC 70.990(67)];

24) "water supply" means any of the waters of the state that are designated in this chapter to be protected for fresh water or marine water uses; water supply includes waters used for drinking, culinary, food processing, agricultural, aquacultural, seafood processing, and industrial purposes; "water supply" does not necessarily mean that water in a waterbody that is protected as a supply for the uses listed in this paragraph is safe to drink in its natural state [18 AAC 70.990(68)]; and

25) "wildlife" means all species of mammals, birds, reptiles, and amphibians [18 AAC 70.990(69)].

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Executive Summary

To be written later.

The workgroup discussed and provided recommendations on the ten key technical issues.

Commented [mbh3]: Later, we should describe the issues more fully here, providing context for why they even are issues. For example, we need to describe why fish consumption rates are so important before we get into the meat of the issue.

Issue #1: What information about fish consumption and fish consumption rates is available to inform the HHC process?

Issue #2: What options does DEC have for developing criteria on a statewide/regional/site specific basis?
Issue #2a: What modeling approach(es) should DEC consider (Determinstic v. Probabilistic)?

Issue #3: What is the appropriate level of protection for Alaska and its residents?
Issue #3a: How should DEC apply bioconcentration v. bioaccumulation factors?
Issue #3b: How should DEC address concerns about its carcinogenic risk value? Issue #4:

Issue #4a: What species should Alaska include for deriving a fish consumption rate?
Marine Fish (e.g., salmon)
Issue #4b: What is the role of Relative Source Contribution (RSC) in relation to fish consumption rates and what are Alaska's options?

Issue #5: What are Alaska's options for implementing the proposed criteria?
Existing tools (compliance schedules) and new tools (variances, intake credits)

I. Introduction

A. Introduction to Water Quality Standards and Human Health Criteria

The federal Clean Water Act (CWA) requires states to adopt and maintain water quality standards for all waterbodies of the United States to ensure that waters are "fishable/ swimmable." These standards are comprised of three elements: (1) designated uses for the waterbody (e.g., aquatic life propagation, recreation, drinking water supply), (2) water quality criteria designed to protect the uses (e.g., metals must be below established concentrations to protect fish and other aquatic life), and (3) both an antidegradation policy and implementation methods.

The CWA regulations direct States to adopt water quality criteria based upon the 304(a) National Recommended Water Quality Criteria, or in the State's discretion, 304(a) criteria modified to reflect site-specific conditions or other scientifically defensible methods (40 CFR 131.11 (b)). Ambient water quality criteria developed by EPA under CWA section 304(a) represent specific levels of chemicals or conditions in a water body that are not expected to cause adverse effects to human health. EPA is required to develop and publish water quality criteria that reflect the latest scientific knowledge. These criteria are not rules, nor do they automatically become part of a state's water quality standards. States may adopt the criteria that EPA publishes, modify EPA's criteria to reflect site-specific conditions, or adopt different criteria based on other scientifically-defensible methods. EPA must, however, approve any new water quality standards adopted by a state before they can be used for CWA purposes.

B. Purpose of Human Health Criteria Workgroup

To facilitate its decision-making process, DEC initiated a public process to inform the development of final human health criteria and implementation procedures. A Human Health Criteria Technical Workgroup (Workgroup) was convened as an informal step before starting a formal rule-making process.

The purpose of the Workgroup was to achieve overall efficiency and a better final regulatory product through early involvement of individuals with varying perspectives. DEC understood that many different interests would be represented and it might not be possible to reach consensus on specific recommendations. Regardless of the degree of consensus attained, all discussion, information, and recommendations are valuable to DEC.

The Workgroup does not take the place of broader outreach to affected stakeholders and the public. In addition to concurrent outreach and public workshops, all Workgroup meetings were open to the public.

C. Process for Workgroup Meetings

The Workgroup met regularly from August, 2015 to XXXX, 2016. The Workgroup was comprised of state, federal, municipal, tribal, academic, environmental non-governmental organizations, and industry representatives. Public notification was provided in advance of all Workgroup meetings via the DEC Water Quality Standards listserv and all meetings were open to the general public. The majority of meetings took place via webinar/teleconference services. Individuals interested in the Workgroup process were provided with meeting-specific contact information and a public comment period was allotted at the end of each Workgroup meeting. A list of Workgroup members is shown on the second title page.

DEC developed a list of five key issues with multiple subtopics to facilitate the Workgroup's evaluation of the EPA methodology and recommended criteria, and Alaska's existing criteria. Each issue discussed began with a background presentation of the issue, a list of key questions DEC had identified, and a description of approaches that other states have taken. Several meetings resulted in the development of "action items" for DEC staff and Workgroup members to research and report back on. After each meeting, a summary of the topics of discussion, potential options and points of consensus/dissention in the group and topics for future discussion were e-mailed to Workgroup members. Once finalized, meeting notes were published on the DEC Human Health Criteria Technical Workgroup website.

After questions and discussion from Workgroup members on the various issues for consideration, the following process was used to obtain and evaluate recommendations:

1. Review alternative approaches.
2. Compare and evaluate options based on other state approaches and/or experience in Alaska.
3. Identify preferred elements for Alaska.
4. Assemble elements into recommendations included in this Workgroup report.
5. Parse conceptual approach into recommendation for draft regulatory or statutory elements.

The Workgroup strived to develop recommendations that the state, permittees, and public could support. Where consensus was not possible, recommendations from the group were captured along with information on the level of support among Workgroup participants, applicability, consistency with statutes and regulations, and other criteria, to inform future DEC discussions. Development of final human health criteria remains DEC's responsibility.

D. Rule-Making Process

DEC intends to use the Workgroup discussions, recommendations, and report along with public input and comments to help it develop draft regulations for formal public notice and review.

II. Status and History of Alaska's Human Health Criteria

This section summarizes federal and state toxics regulation in Alaska and describes DEC's process to develop human health criteria implementation methods.

A. Source of Human Health Criteria and Implementation Methods

Federal Clean Water Act Regulations

Federal law requires that each state adopt a statewide water quality criteria for chemicals of concern (COC) and identify implementation methods. The CWA requirements are incorporated as regulations in Title 40 Code of Federal Regulations (CFR) 131.12.

Guidance Development of Human Health Criteria

The U.S. Environmental Protection Agency (EPA) issued *Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health* (2000) in order for states to have clear direction on the polices and processes to use when developing human health criteria (HHC) in water quality standards. The Methodology directs states and authorized tribes, when adopting their water quality criteria, to apply one of four options:

(1) adopt EPA's 304(a) recommendations;

(2) adopt 304(a) criteria modified to reflect site-specific conditions;

(3) develop criteria based on other scientifically defensible methods; or

(4) establish narrative criteria where numeric criteria cannot be determined.

The Methodology provides States and authorized Tribes the necessary guidance to adjust water quality criteria developed under Section 304 to reflect local conditions or to develop their own water quality criteria using scientifically defensible methods consistent with this Methodology. EPA encourages States and authorized Tribes to use this Methodology to develop or revise water quality criteria to appropriately reflect local conditions. EPA believes that ambient water quality criteria inherently require several risk management decisions that are, in many cases, better made at the State, Tribal, or regional level (EPA 2000).

In 2015 EPA issued an update to the nationally recommended criteria. The update addresses 94 chemicals of concern (COC) and include updated exposure factors (body weight, drinking water consumption rates, ~~fish~~and fish consumption rate), bioaccumulation factors, and toxicity factors (reference dose, cancer slope factor).

B. DEC Human Health Criteria

The U.S. Environmental Protection Agency promulgated human health criteria (HHC) for carcinogens for Alaska in 1992 under the National Toxics Rule (NTR). DEC'S adopted non-carcinogenic HHC at 18 Alaska Administrative Code (AAC) 70.020 are based on 1980 EPA-recommended values. HHC criteria establishes numeric criteria that must be met to ensure public health from the consumption of aquatic life (marine water), the consumption of drinking water (both treated and untreated), and incidental ingestion from surface water sources (freshwater).

III. Key Human Health Criteria Issues

DEC identified five issues to direct the Workgroup's evaluation of options for DEC to consider during the development of revised human health criteria. This section presents each issue, provides a brief description of the issue, states the recommendations of the Workgroup, identifies various options discussed by the Workgroup for that issue, and summarizes the pros and cons that were considered. As the issues are inherently related, references to prior or later issue subsections do occur. Where applicable, there is a discussion of dissenting views or lack of consensus regarding specific parts of a given issue.

A. Issue #1: What Information about Fish Consumption and Fish Consumption Rates is Available to Inform the HHC Process?

A1. Description of issue #1: What Information about Fish Consumption and Fish Consumption Rates is Available to Inform the HHC Process?

The data used to determine fish consumption rates for a population of concern are typically acquired through use of a dietary survey instrument. Various instruments are currently available but have varying degrees of statistical strength, data reliability, and predictive capacity. In an effort to determine what data, specific to Alaska, was currently available for consideration by the department, in 2014-2015 DEC secured a contract with The Cadmus Group. Inc. to conduct a Literature Review of dietary information that considered fish consumption patterns. The report identified eight unique sources that met the criteria of the review. An additional four sources of information were identified during peer review of the Literature Review. The Literature Review recommends that the findings may inform the DEC process but enough information on specific FCRs is not currently available to determine a statewide FCR. DEC has made the Literature Review available to the Workgroup and the general public for comment.

The Workgroup considered the following questions while discussing this issue:

- What is the purpose of the HHC Literature Review?
  - Should this be a one-time report or an ongoing catalogue?
  - When should DEC finalize the report?
  - How should/should not the data in the Literature Review be used in the revision process?
- Should DEC develop a recommended dietary survey methodology?
  - Should DEC develop a rating system to weigh survey data?

The workgroup considered the number and sources of surveys that were noted as having specific information about fish consumption rate(s), the representativeness of said data, and applicability of that data to the regulatory process. The workgroup also discussed future application of dietary survey information during the HHC revision process and how that data could be treated. The workgroup noted that dietary information collected by the ADF&G Division of Subsistence was readily available and that a methodology for converting community harvest data to individual consumption rates was available (see ADF&G Technical Paper #261).

The workgroup considered that development of a dietary survey methodology, whether it be state-specific or by EPA, was a good idea. The workgroup discussed how differences such as coastal versus interior communities may be significant but need to be discussed relative to the FCR versus RSC contribution. It was also noted that the ADF&G Division of Subsistence community harvest data base is a good source of data and appears to be in agreement with the data collected as part of the Seldovia Village Tribe dietary survey effort. The workgroup noted that regional issues may be of concern but that basic principles in survey design provide the fundamentals behind a good product.

A2. Workgroup Member Recommendations - Issue #1

The following list is a compilation of the Workgroup member recommendations for Issue #1.

1. DEC should consider the Literature Review to be final as of a certain date.
2. DEC should use the Literature Review for informational purposes only rather than as the basis for establishing a statewide fish consumption rate.
3. DEC should consider developing state-specific guidance for conducting dietary surveys for the purpose of establishing a fish consumption rate (range).
4. DEC should consider further exploring a correlation between the ADF&G Division of Subsistence community harvest data base and fish consumption dietary surveys.

A3. Options Considered for Issue #1 with their Pros and Cons

Workgroup members discussed further review of data sources that may be available through federal agency (NPS; USFWS) subsistence data collection efforts.

Pro: Additional sources of data may contribute to the discussion about different fish consumption rates in different regions.

Con: Many of these sources may not be publicly available for review and raise concerns about privacy. It is possible that this information is not available in a format readily available for review and consideration as part of the regulatory process.

A4. Further Discussion

B. Issue #2: What Options Does DEC Have for Developing Criteria on a Statewide/Regional/ Site - Specific Basis?

2a: What Modeling Approach(es) Should DEC Consider Using When Developing Statewide/Regional/Site - Specific Criteria?

B1. Description of Issue #2

To be added following Workgroup discussion…

B1a Description of 2(a)

XXX

The Workgroup considered the following questions while discussing this issue:

- XXX

Additionally, the Workgroup added the following questions:

-

B2. Workgroup Member Recommendations – Issue #2

The following list is a compilation of the Workgroup member recommendations for Issue #2.

1.

B3. Options Considered for Issue #2 and #2a with their Pros and Cons

Workgroup members…

Existing DEC approach to develop human health criteria for application in water quality standards

The Workgroup discussed the existing DEC approach for application of water quality standards in water pollution control programs.

B4. Further Discussion

xxx

C. Issue #3: What is the Appropriate Level of Protection for Alaska and its Residents

3a: How Should DEC Apply Bioconcentration versus Bioaccumulation Factors?

3b: How Should DEC Address Concerns about the State Carcinogenic Risk Value?

C1a. Description of Issue #3: What is the appropriate level of protection for Alaska and its citizens?

The establishment of human health criteria requires states to make a risk management determination regarding the population of concern and the level of protection the state wishes to apply. EPA provides language on this risk management decision in EPA 2000:

> *Risk management is the process of selecting the most appropriate guidance or regulatory actions by integrating the results of risk assessment with the engineering data with the social, economic, and political concerns to reach a decision. In this Methodology, the choice of a default fish consumption rate which is protective of 90 percent of the general population is a risk management decision. The choice of an acceptable cancer risk by a State or Tribe is a risk management decision.* (Section 2.2)

EPA methodology directs states to use a hierarchical approach:

> *[b]ecause the level of fish intake in highly exposed populations varies by geographical location, EPA suggests a four preference hierarchy for States and authorized Tribes to follow when deriving consumption rates that encourages use of the best local, State, or regional data available. … EPA strongly emphasizes that States and authorized Tribes should consider developing criteria to protect highly exposed population groups and use local or regional data over the default values as more representative of their target population group(s). The four preference hierarchy is: (1) use of local data; (2) use of data reflecting similar geography/population groups; (3) use of data from national surveys; and (4) use of EPA's default intake rates.* (EPA, 2000, pages 4-24 to 4-25).

The decisions made around the issue of fish intake or consumption levels and the response these values will have on the HHC formula should consider how Alaska's populations are similar or different from one another, sample size used in various data sources, and assumptions about the data being used to make decisions. It is expected that any population will consist of a range of values that represent those who do not consume fish to those that consume large quantities of fish on a regular basis. To make a determination regarding whether the proposed revisions are protective of the population, the Workgroup considered the following questions while discussing this issue:

- Should Alaska use consumer only data or consider consumer and non-consumer data?

- Should Alaska concentrate its efforts on developing a fish consumption rate for the general population or focus on sub-population consumption rates?

The Workgroup recognized the statistical concern that occurs when comparing consumer only data to that of consumer and nonconsumer data. In short, the inclusion of consumer only data ensures that you are protecting the actual population of concern but characterization of a nonconsumer would be challenging. The Workgroup discussed the difficulty with identifying a non-consumer without better characterizing the timeframe of concern, range of products that contain marine life, and assumptions made during the dietary survey process. Mischaracterization of consumers as nonconsumers has the effect of overestimating "true" consumption values. Contrary to this, use of consumer and nonconsumer data will have the effect of decreasing estimates of average and other percentiles relative to "true" values.

The Workgroup concluded its discussions on the issue by determining that the inclusion of *Consumers only* would be a practical as well as consistent approach (compared with other states) to addressing the population of concern. While additional attention to dietary survey methodology is warranted to ensure that nonconsumers are appropriately characterized, the inclusion of nonconsumers would not protect the population of concern.

The second question: "Should Alaska concentrate its efforts on developing a fish consumption rate for the general population or focus on sub-population consumption rates?" offers a different perspective as the majority of Alaska's population of 735,000 reside in the more developed parts of Alaska including Anchorage, Fairbanks, and Juneau.[2] The 2000 Methodology recognizes that the decision to use a particular fish consumption rate which is either protective of 90 percent of the general population or a particular percentage of a highly exposed population is a risk management decision.

C1b. Description of Issue #3a: How should DEC apply Bioconcentration versus Bioaccumulation Factors?

Description: To be added once we have a discussion on the issue

The Workgroup considered the following questions while discussing this issue…

C1c. How Should DEC Address Concerns about the State Carcinogenic Risk Value?

Description: To be added once we have a discussion on the issue

The Workgroup considered the following questions while discussing this issue…

[2] Information located at the Alaska Department of Labor and Workforce Development. Downloaded on 11-16-15.

C2. Workgroup Member Recommendations – Issue #3

The following list is a compilation of the Workgroup member recommendations for Issue #3.

1. DEC should use consumer-only data as long as the focus is on FCR that protect rural populations. There is little likelihood that non-consumers with be significant in rural areas.
2. Protection of rural populations will likely protect urban population. DEC should focus on studying rural populations to set the Alaska FCR.
3. Data that represents the Asian/Pacific Islander population needs to be found and considered for urban areas.
4. Review of ADF&G harvest data (including Tech Paper 261) may provide a basis for Alaska FCR.

C3. Options Considered for Issue #3, 3a, and 3b with their Pros and Cons

The Workgroup explored the range of options for…

•

Description….

D. Issue #4a: What Species Should Alaska Include For Deriving a Fish Consumption Rate (Range)?

Issue #4b: What is the Role of Relative Source Contribution (RSC) in Relation to Fish Consumption Rates (Ranges) and What are Alaska's Options?

D1a. Description of Issue #4a; What Species Should Alaska Include For Deriving a Fish Consumption Rate (Range)?

The EPA 2000 methodology and associated exposure vector of *fish consumption* includes the consumption of freshwater and estuarine species of aquatic life as they are located within those waters regulated by state water pollution control programs under the CWA. The inclusion of all fish, regardless of origin is considered by EPA to be an accurate means of ensuring that the total rate of consumption of fish and shellfish from inland, estuarine, and near-coastal water reflects the consumption rates that are characteristic of the population of concern. EPA states in their *Frequently Asked Questions:*

> It is not necessary for the FCR to include fish and shellfish species designated as marine species, as that exposure is addressed by relative source contribution., However, partitioning of fish and shellfish into the different habitats in order to develop an FCR

can only be done where sufficient data are available for this to be done in a scientifically defensible manner.

EPA expects that the standards will be set such that residents can safely consume from local waters the amount they would normally consume from all inland and nearshore waters.[3] Thus, the decision whether to include or exclude market fish as well as anadromous species are risk management decisions.

The Workgroup considered the following questions while discussing this issue:

- Should Alaska include *all fish* ('market basket approach') or only base a fish consumption rate on the consumption of locally-sourced fish?
- Should Alaska include anadromous species (including salmonids) as part of its FCR exposure value?

In response to the first question regarding all fish or only locally sourced fish, the Workgroup discussed the relationship between Alaska and fishing in general. The Workgroup readily acknowledged that locally-sourced fish or fish that were caught from Alaska's fresh and marine waters, were likely to be the predominant source of fish for Alaskans but even more so in rural areas where subsistence is actively practiced. The Workgroup noted that the dietary differences between rural and urban populations may exist due to availability of alternative sources of aquatic life but data was not readily available to quantify how large of a difference may exist.

In response to the second question regarding how Alaska should address anadromous species in its FCR, the EPA 2000 methodology directs states to consider the consumption of marine species to be part of the RSC. O'Neill et al. (2006) state that because anadromous fish typically spend the majority of their life in marine waters, the majority of the bioaccumulative toxins present in fish tissue can be attributed to offshore sources. This would place the regulation of such sources outside of state waters and the scope of the CWA. However, the states of Oregon and Washington have determined that anadromous species will be included in their respective FCRs to protect overall fish consumption rather than what is only attributed to state waters. EPA said in their 2011 approval letter to Oregon, "the revised standards would serve as a national and regional model" (EPA 2011). Washington's decision was predicated by scientific data that demonstrated certain populations of Chinook resided in the San Juan region which are considered Washington waters, throughout the year. Thus, this subpopulation of salmon would acquire the majority of their body burden while in Washington waters.

ADF&G Division of Subsistence data shows that salmon consumption makes up 32% (ADF&G 2012) of total harvest in rural communities.

[3] EPA Region 10 comment letter to Idaho 11-06-15

D1b. Description of Issue #4b: What is the Role of Relative Source Contribution (RSC) in Relation to Fish Consumption Rates (Ranges) and What are Alaska's Options?

~~Description :~~Description: To be added once we have had discussion on the issue

The Workgroup considered the following questions while discussing this issue:

D2. Workgroup Member Recommendations – Issue #4

The following list is a compilation of the Workgroup member recommendations for Issue #4.

1. Consumption of market-fish may not be a significant factor compared to the consumption of locally- sourced fish/aquatic life for rural populations
2. DEC should look for data on the amount of fish and shellfish sold commercially in rural areas.

D3. Options Considered for Issue #4 with their Pros and Cons

The Workgroup discussed whether it would be beneficial to

D4. Further Discussion

E. Issue #5: What Are Alaska's Options for Implementing the Proposed Criteria?

E1. Description of Issue #5

Description

The Workgroup considered the following questions while discussing this issue:

-

E2. Workgroup Member Recommendations – Issue #5

The following list is a compilation of Workgroup member recommendations for Issue #5.

1.

E3. Options Considered for Issue #5 with their Pros and Cons

The Workgroup discussed…

- Pros:
- Cons:

E4. Further Discussion

IV. Issues Raised by the Public

This section summarizes issues raised by the public during Workgroup meetings. It does not include comments received by DEC during presentations, conference calls, personal meetings, and other interactions with individuals or groups during 2012. That input will also be considered by DEC.

All Workgroup meetings were advertised and open to the public. Public notice was provided via newspaper ad, website, and email listserv approximately two weeks in advance of every meeting.

During all meetings, public comments were accepted at the end of each meeting day. Comments were made directly to the Workgroup and sometimes included brief discussions with Workgroup members.

General comments received from the public regarding the Human Health Criteria Workgroup process included the need for:

- TO BE INCLUDED AT A LATER DATE

The following key issues were discussed during the Workgroup meetings and received comments from the public who attended the meetings. General summaries of the public comments are listed below. The detailed public comments can be found within the Workgroup meeting summaries posted on Alaska DEC's Division of Water website.

Issue #1: What information about fish consumption and fish consumption rates is available to inform the HHC process?

Issue #2: What options does DEC have for developing criteria on a statewide/regional/site specific basis?
Issue #2a: What modeling approach(es) should DEC consider (~~Deterministic~~Deterministic v. Probabilistic)?

Issue #3: What is the appropriate level of protection for Alaska and its residents?

Issue #3a: How should DEC apply bioconcentration v. bioaccumulation factors?

Issue #3b: How should DEC address concerns about its carcinogenic risk value? Issue #4:

Issue #4a: What species should Alaska include for deriving a fish consumption rate?

Issue #4b: What is the role of Relative Source Contribution (RSC) in relation to fish consumption rates and what are Alaska's options?

Issue #5: What are Alaska's options for implementing the proposed criteria?
Existing tools (compliance schedules) and new tools (variances, intake credits)

Other Comments:

xxx

Appendix A – Primary Regulations Involved

Add Toxics info here

Waters of the United States
40 CFR 122.2

For purposes of the Clean Water Act, "Waters of the United States" means:
(a) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
(b) All interstate waters, including interstate "wetlands";
(c) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, "wetlands", sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:

(1) Which are or could be used by interstate or foreign travelers for recreational or other purposes;

(2) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or

(3) Which are used or could be used for industrial purposes by industries in interstate commerce;

(d) All impoundments of waters otherwise defined as waters of the United States under this definition;
(e) Tributaries of waters identified in paragraphs (a) through (d) of this definition;
(f) The territorial sea; and
(g) "Wetlands" adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) through (f) of this definition.

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 423.11(m) which also meet the criteria of this definition) are not waters of the United States. This exclusion applies only to manmade bodies of water which neither were originally created in waters of the United States (such as disposal area in wetlands) nor resulted from the impoundment of waters of the United States. [See Note 1 of this section.] Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA.

State Designated Uses

The following regulations are excerpts from 18 AAC 70 Alaska Water Quality Standards adopted in 2012.

18 AAC 70.050. Classification of state water. Except as specified in 18 AAC 70.230(e) [reclassified waters], state water is protected for the following use classes:

(1) fresh water - Classes (1)(A), (1)(B), and (1)(C);
(2) groundwater - Class (1)(A);
(3) marine water - Classes (2)(A), (2)(B), (2)(C), and (2)(D). (Eff. 11/1/97, Register 143)

18 AAC 70.020. Protected water use classes and subclasses; water quality criteria; water quality standards table. (a) Classes and subclasses of use of the state's water protected by criteria set out under (b) of this section are

(1) fresh water
  (A) water supply
    (i) drinking, culinary, and food processing;
    (ii) agriculture, including irrigation and stock watering;
    (iii) aquaculture;
    (iv) industrial;
  (B) water recreation
    (i) contact recreation;
    (ii) secondary recreation;
  (C) growth and propagation of fish, shellfish, other aquatic life, and wildlife; and
(2) marine water
  (A) water supply
    (i) aquaculture;
    (ii) seafood processing;
    (iii) industrial;
  (B) water recreation
    (i) contact recreation;
    (ii) secondary recreation;
  (C) growth and propagation of fish, shellfish, other aquatic life, and wildlife; and
  (D) harvesting for consumption of raw mollusks or other raw aquatic life.

(Eff. 11/1/97, Register 143; am 4/29/99, Register 150; am 5/27/99, Register 150; am 6/22/2003, Register 166; am 6/13/2006, Register 178; am 9/1/2006, Register 179; am 9/19/2009, Register 191; am 5/26/2011, Register 198)

Note: The water quality criteria to protect the classes and subclasses of water use set out in (a) of this section are included in 18 AAC 70.020(b) and the Alaska Water Quality Criteria Manual for Toxic and Other Deleterious Organic and Inorganic Substances, dated December 12, 2008 and adopted by reference.

Appendix B – References

USEPA (U.S. Environmental Protection Agency). 2012. *Water Quality Standards Handbook: Second Edition*. EPA-823-B-12-002. U.S. Environmental Protection Agency, Office of Science & Technology, Washington, DC.

Appendix C – Recommended Steps for Completing a Dietary Survey

Step 1: xx

Description:

a. xx
    i. xx